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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: SCHEDULING METHOD AND SYSTEM FOR RAIL NETWORKS

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(57) **Abstract:** The present invention provides a method and system for calculating a plan for moving trains on a network that reduces the cost of delays or late running. The invention is useful for timetable development, for real-time dynamic rescheduling of the trains on a network, and for assessing proposed changes to network infrastructure. A method of moving a given set of trains from their respective origins to their respective destinations, said method comprising the steps of: (i) form a schedulable set of trains consisting of all trains not at their destination that have at least one unoccupied link; (ii) from this schedulable set select the train with the earliest start time from its current location, wherein this selected train is travelling from station S_i to station S_j ; (iii) form a contender set of trains consisting of all trains that have as their next move a dispatch from station S_i to S_j and vice-versa; (iv) from this contender set select the train with the earliest arrival time at its successor station (either station S_i to S_j); (v) for the selected train invoke a deadlock avoidance procedure wherein if this procedure accepts the train then go on to step (iv), or if the train is rejected then remove it from the schedulable set, and if the schedulable set is not empty then return to step (ii) otherwise go to step (vii); (vi) schedule the selected train over its chosen link to its successor; and (vii) return to step (i) until all trains are at their destination or the schedulable set is empty.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU03/00605

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. ⁷: B61L 27/00, G09D 1/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

REFER TO ELECTRONIC DATABASE BELOW

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

DWPI: & Keywords: train, schedule, optimising, and similar terms.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 01/62573 A1 (SIEMENS SCHWEIZ AG et al.) 30 August 2001 See entire document.	1
X	WO 01/49550 A1 (GE HARRIS RAILWAYS ELECTRONICS LLC) 12 July 2001 See entire document.	1
X	US 6154735 A (CRONE) 28 November 2000 See entire document.	1

Further documents are listed in the continuation of Box C

See patent family annex

* Special categories of cited documents:		
"A" document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent but published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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"O" document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed		

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 19950186 A1 (ABB PATENT GmbH) 26 April 2001 See entire document.	
A	WO 01/49548 A1 (GE HARRIS RAILWAY ELECTRONICS LLC) 12 July 2001 See entire document.	

INTERNATIONAL SEARCH REPORT**Information on patent family members**

International application No.

PCT/AU03/00605

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report			Patent Family Member				
WO	200162573	CA	2401077	EP	1265776	US	2003025043
WO	200149550	AU	200124722	CA	2395064		
US	6154735	AU	33746/95	BR	9509462	CA	2198855
		CN	1162290	EP	782521	PL	319030
		US	5623413	WO	9606766	ZA	9507360
		US	5828979	US	5794172	US	6459964
		AU	73862/98	BR	9809831	WO	9851556
DE	19950186	NONE					
WO	200149548	AU	200124728	CA	2395144		

END OF ANNEX